

Castlereagh Bay and associated islands

Location and Description

Castlereagh Bay is in remote northern Arnhem Land, 460 km east of Darwin. The Site includes the offshore and inshore Crocodile Islands group, extensive mudflats reaching up to 12 km from the mainland, mangrove forests, and an area of floodplain.

Tenure and Land Use

Castlereagh Bay and its associated islands are Aboriginal freehold land and held by the Arnhem Land Aboriginal Land Trust. The Site mainly supports Indigenous use, but commercial fisheries also work in the Bay. The small community of Milingimbi (population 895) is located on Milingimbi Island within the Site.

Significance Rating

International Significance

Ecological Values

This Site comprises diverse habitats including rock and sand islands, the coastline, and adjoining coastal floodplains. There are extensive areas of intertidal mudflats around the bay and islands, which regularly support large aggregations of migratory shorebirds in internationally significant numbers. The off-shore islands support high numbers of colonial breeding seabirds, and significant numbers of three species of marine turtles use the sandy beaches for nesting. Eight threatened species are reported from the Site.

Management Issues

Feral animals, especially Water Buffalo and pig, weeds and fire are management issues for this Site, but the extent of their impact within the Site is unknown. The remote islands in the Crocodile Island group provide important refuges from feral animals, such as the cat and the Cane Toad, and it is important that efforts are made to prevent pests and weeds from being transported to, and establishing on, these islands.

Condition

The natural environment in this Site is relatively undisturbed but weeds and feral animals are likely to be degrading some parts.



Current Conservation Initiatives

The Indigenous Wanga Djakamirr rangers, based from Ramingining, conduct fishing patrols of the rivers and channels around Milingimbi and the mainland.



CASTLEREAGH BAY AND ASSOCIATED ISLANDS - SITE OF CONSERVATION SIGNIFICANCE

LOCATION	SOCS Number	19 (NT Parks and Conservation Masterplan Map Number 8)
	Latitude/Longitude	11° 59' South, 135° 2' East (at centre)
	Bioregion	Arnhem Coast
	Description	<p>This site extends along the mainland coast from Cape Stewart in the north-west to the mouth of the Woolen River in the east and includes the mouth of the Glyde River system. It includes Mooroongga Island, North East and North West Crocodile Islands plus smaller inshore islands and encompasses a terrestrial area of 717 km². The site is dominated by tidal flats (249 km²) associated with the Djigagila and Darbilla Creek systems that extend for up to 12 km from the shoreline in places, and a smaller area of coastal floodplain (180 km²).</p> <p>Neighboring Boucaut Bay and the Arafura Swamp are also recognised as sites of high conservation significance in the NT.</p>
THREATENED SPECIES	Significance Rating	National Significance
	Threatened plants and animals (Listings at National/NT level CR - Critically Endangered, EN - Endangered, VU - Vulnerable, NT - Near Threatened, LC - Least Concern, DD - Data Deficient)	<p>Eight threatened species are reported from this site.</p> <p>Plants</p> <ul style="list-style-type: none"> ▪ Australian Arenga palm <i>Arenga australasica</i> (VU/DD) <p>Vertebrates</p> <ul style="list-style-type: none"> ▪ Emu <i>Dromaius novaehollandiae</i> (-/VU) ▪ Partridge Pigeon <i>Geophaps smithii</i> (VU/VU) ▪ False Water-rat <i>Xeromys myoides</i> (VU/DD) ▪ Yellow-spotted Monitor <i>Varanus panoptes</i> (-/VU) ▪ Flatback Turtle <i>Natator depressus</i> (VU/DD) ▪ Green Turtle <i>Chelonia mydas</i> (VU/LC) (Chatto and Baker 2008) ▪ Olive Ridley Turtle <i>Lepidochelys olivacea</i> (EN/DD) <p>In the NT, the False Water-rat is only known from 10 records at six sites, and some of the most recent records are from the Glyde River floodplain in 1998 and 1999 (Woinarski <i>et al.</i> 2000).</p>
ENDEMIC SPECIES	Significance Rating	Not Significant
	Notes	<p>Endemic to the NT: 27 plant and three vertebrate species recorded in this site are endemic to the NT.</p> <p>Other: One plant species is only known from the site within the NT and one is only known from the Arnhem Coast bioregion within the NT, but both species also occur in other states.</p>
WILDLIFE AGGREGATIONS	Significance Rating	International Significance
	Marine turtles	Sandy beaches on the islands of Mooroongga, Little Mooroongga, and North West Crocodile are significant for Flatback, Green, and Olive Ridley Turtles (Chatto and Baker 2008), although Flatback and Olive Ridley Turtles are the dominant nesting species. Here we consider the site of National significance to marine turtles.
	Seabirds	The small off-shore rock and sand islands north-east of Milingimbi are significant nesting sites for colonial breeding seabirds. Colonies on North West and North East Crocodile Islands (S013, S014) support large numbers of Crested Terns (10,000+) and Bridled Terns and are considered to be nationally significant (Chatto 2001).
	Waterbirds	This site is dominated by tidal flats but is frequented by some waterbirds. Chatto (2006) notes eight important waterbird records for this site, including counts of low thousands of ducks that are regionally important. One waterbird breeding colony dominated by 2000 egrets is reported from mangroves in this site (Chatto 2000a).
	Shorebirds	<p>The extensive areas of intertidal mudflats in Castlereagh Bay support some of the largest flocks of shorebirds in the Top End. The area regularly supports >20 000 shorebirds, with highest counts of 30 500+ (1998) and 28 500 (1992) (Chatto 2003). Great Knots and Bar-tailed Godwits dominated these counts.</p> <p>Maximum counts of species that are internationally significant (> 1% East Asian-Australasian Flyway population; Bamford <i>et al.</i> 2008) include: 7000 Bar-tailed Godwit; 800 Terek Sandpiper; 4400 Great Knot (Chatto 2003); 700 Far Eastern Curlew; 456 Ruddy Turnstone; 800 Grey-tailed Tattler (Chatto 2000b). Maximum counts of Pied Oystercatcher (320) (non-migratory shorebird) (Chatto 2003) is also internationally significant (>1% global population; G. Dutson in prep.).</p> <p>There are 42 important shorebird records for this site (R. Chatto, NRETAS <i>unpubl</i>), including the significant counts identified above and other counts of regional importance.</p>
	Other aggregations	None known
WETLANDS	Significance Rating	National Significance (possible International)
	Ramsar criteria met	This site has not been formally assessed against Ramsar criteria but is likely to satisfy at least waterbird based criteria (criterion 5: important waterbird aggregation site with >20 000 waterbirds; criterion 6: regularly supports >1% of the individuals in a population) for listing as a wetland of international importance under the Ramsar Convention.
	DIWA criteria met	This site has not been assessed against the criteria for listing as a wetland of national significance.

CASTLEREAGH BAY AND ASSOCIATED ISLANDS - SITE OF CONSERVATION SIGNIFICANCE

	Notes	<p>This site has been nominated as a national High Conservation Value Aquatic Ecosystem (the finalised list of HCVAE will replace the DIWA list), and is a priority HCVAE in the Caring for our Country Business Plan 2009-2010 (Commonwealth of Australia 2008).</p> <p>The floodplain area of this site is small in comparison to the adjacent Arafura Swamp and Bylth-Caddell River floodplains, but may still carry important wetland values. The site is a priority High Conservation Value Aquatic Ecosystem (Commonwealth of Australia 2008) and a target for investment in the Caring for our Country Business Plan 2009-2010.</p>
	Rivers	<p>The site encompasses the Glyde River between the Arafura Swamp and its outlet into Castlereagh Bay. Excess freshwater from the swamp drains across levee banks, or through an array of collection gutters, into the tidal channel of the river, which meanders for about 44 km across the 15 km-wide coastal plain (Brennan <i>et al.</i> 2003). This is an unusual river system in the Top End.</p>
FLORA	Significance Rating	Regional Significance
	Notes	<p>Rainforest: About 1 440 ha of rainforest (or 1% of the NT rainforest estate) occur in this site. Most is dry rainforest and occurs as small patches <100 ha, but larger patches are found on Milingimbi and adjacent islands and two patches are >100 ha (Russell-Smith 1991).</p>
OTHER ENVIRONMENTAL VALUES		<p>The Glyde River supports high densities of Saltwater Crocodiles which are amongst the highest of all rivers surveyed in the Top End (Fukuda <i>et al.</i> 2007).</p> <p>The Chestnut Rail is a range-restricted species that is reported from mangrove areas in this site (Chatto 2006).</p> <p>Forty two species recorded from this site are listed under international conventions or bilateral agreements protecting migratory animals.</p> <p>Castlereagh Bay is identified as an internationally important site for migratory shorebirds in the East Asian-Australasian Flyway (Bamford <i>et al.</i> 2008).</p> <p>The coastal fringe of Milingimbi Island and the small inshore islands of Darbada, Crocodile, Yabooma, Gananggarngur and Mooroonga, are proposed to be nominated by Birds Australia as an internationally-recognised <i>Important Bird Area</i> (G. Dutton in prep.) due to records of Chestnut Rail and significant counts of Pied Oystercatchers and migratory shorebirds.</p> <p>The Arafura Swamp is listed on the Register of the National Estate for its natural values (Australian Heritage Council) and part of it lies within this site.</p> <p>The isolation of the site and current lack of proposed development will help to maintain the conservation values of the site in the medium term (Chatto 2000b).</p> <p>The marine areas within this site are likely to encompass significant biodiversity values and these are currently being explored and collated in a project by the Marine Biodiversity Group of NRETAS (K. Edyvane, NRETAS, pers. comm.).</p>
MANAGEMENT ISSUES		<p>Fire: In the period 1993-2004, 54% of the site was burnt in fewer than three years, and 2% was burnt in more than six years.</p> <p>Feral animals: Water Buffalo are common and widespread in the area and pigs are present in unknown numbers (Wildlife Management, NRETAS, unpublished).</p> <p>Weeds: Seven declared Category B weeds and six other undeclared but problematic environmental weeds (high priority weeds: Smith 2001) are recorded from this site (<i>Calopogonium mucunoides</i>, <i>Cenchrus ciliaris</i>, <i>Cenchrus echinatus</i>, <i>Clitoria ternatea</i>, <i>Crotalaria goreensis</i>, <i>Hibiscus sabdariffa</i>, <i>Hyptis suaveolens</i>, <i>Senna obtusifolia</i>, <i>Senna occidentalis</i>, <i>Sida acuta</i>, <i>Stachytarpheta cayennensis</i>, <i>Tribulus cistoides</i>, and <i>Urochloa mutica</i>). Roads are a major conduit for weeds within the site.</p> <p>Other: All coastal areas in northern Australia are at risk of degradation from sea-level rise resulting from climate change (Hyder Consulting 2007).</p>
MANAGEMENT INFORMATION	NRM groups	Wanga Djakamirr Rangers (Ramingining) (Northern Land Council 2006).
	Protected areas	No parts of the site fall within the current protected areas system.
	Current management plans	<p>Site-specific plans: No information located.</p> <p>National recovery plans for threatened species: Marine turtles (Environment Australia 2003); False Water-rat (Queensland EPA in prep).</p> <p>Other management plans: Australian Weeds Strategy (NRMMC 2007); Threat Abatement Plan for Predation, habitat degradation, competition and disease transmission by feral pigs (DEH 2005); FIREPLAN: Fire management for the savanna community (Russell-Smith <i>et al.</i> in press.).</p>
	Monitoring programs and research projects	<p>Fire in the tropical savannas is mapped continuously under the North Australia Fire Information Project http://www.firenorth.org.au/nafi/app/init.jsp</p> <p>Regular surveys of Saltwater Crocodiles are conducted in the Glyde River (PWSNT 2005), with the next surveys scheduled for mid 2008.</p>
	Management recommendations	<p>Continue to support Wanga Djakamirr Rangers in managing threatening processes, monitoring threatened species, and recording and documenting natural resource values (NRETA 2005)</p> <p>In conjunction with Northern Land Council, traditional owners and Fisheries Group (PIFM) support and assist with the establishment of a community based Ranger group at Milingimbi (NRETA 2005)</p>

KEY REFERENCE S	Papers & reports	Brennan, K., Woinarski, J., Hempel, C., Cowie, I. and Dunlop, C. (2003). <i>Biological inventory of the Arafura swamp and catchment</i> . A report to Indigenous community rangers and the Natural Heritage Trust, Northern Territory Department of Infrastructure, Planning and Environment, Darwin. Woinarski, J.C.Z., Brennan, K., Dee, A., Njudumul, J., Guthayguthay, P., and Horner, P. (2000). Further records of the false water-rat <i>Xeromys myoides</i> from coastal Northern Territory. <i>Australian Mammalogy</i> 21, 245-247.
	Contributors	Kym Brennan, Biodiversity Conservation, NRETAS, Darwin



Olive Ridley hatchlings (Photo: Ray Chatto)



Migratory shorebirds (Photo: Clive Minton)



Magpie geese feeding (Photo: Ray Chatto)



Crested tern colony, Seagull Island, Tiwi Islands (Photo: Guy Dutson)